DOCUMENT RESUME

ED 337 570 UD 028 336

AUTHOR Frazer, Linda; Ligon, Glynn
TITLE Comparing Actual and Predicted Dropout Rates To Evaluate Program Effectiveness. Publication No. 90.19.
INSTITUTION Austin Independent School District, Tex. Office of Research and Evaluation.
PUB DATE Apr 91
NOTE 18p.; Paper presented at the Annual Meeting of the American Educational Research Association (Chicago, IL, April 3-7, 1991).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Dropout Characteristics; *Dropout Prevention; *Dropout Programs; *Dropout Rate; High Risk Students; Potential Dropouts; Program Evaluation; *Research Methodology; School Districts; Secondary Education; *Secondary School Students; Urban Education; Urban Schools; *Urban Youth
IDENTIFIERS *Austin Independent School District TX

ABSTRACT

This paper describes a methodology for the evaluation of dropout prevention programs, for calculating dropout rates, and for comparing alternative programs equitably. A first step involves developing a hierarchy of criteria for evaluating programs. These criteria are used to obtain dropout risk probability for individuals and groups and types of groups. Modifications are made to determine dropout rates by separate grade span, by semester, and by individual campus. These methods are used with data from various Austin (Texas) Independent School District files and studies. Results indicate that recalculation of dropout rates for students in grades 9 through 12 and for students in grades 7 through 8 shows that an original calculation, which groups these students together, over-predicts the number of dropout for middle school and under-predicted the number of dropouts for high school. Results also show that dropout rates differ if calculated separately for spring and fall. The methodology permits the development of charts to compare programs to themselves over time or to compare programs with each other at specific points in time. The report contains six figures, three attachments providing examples of the kinds of charts the methodology permits, and four references. (JB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 332750

COMPARING ACTUAL AND PREDICTED DROPOUT RATES TO EVALUATE PROGRAM EFFECTIVENESS

Linda Frazer
Glynn Ligon

AUSTIN INDEPENDENT SCHOOL DISTRICT
Department of Management Information
Office of Research and Evaluation

Paper Presented at the Annual Meeting of the
American Educational Research Association
Chicago, April, 1991

Session 37.33

Publication No. 90.19

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☛ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Linda Frazer
Austin ISD

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

UD 028 336

 BEST COPY AVAILABLE

ACKNOWLEDGEMENT

We acknowledge with much gratitude the contributions of David Wilkinson (Evaluator), Stacy Buffington (Programmer/Analyst), Paula Marable (Evaluation Associate), Ruth Fairchild (Secretary), and Irene Fabian (Secretary) to this paper.

COMPARING ACTUAL AND PREDICTED DROPOUT RATES TO EVALUATE PROGRAM EFFECTIVENESS

At the end of 1990, personnel in the Austin Independent School District's (AISD) Office of Research and Evaluation (ORE) made an extensive search for reports on effective dropout programs. Over 60 calls were made to school systems around the country to request copies of reports on effective dropout prevention practices. The net result was three studies that were based upon formal evaluation practice that documented success. Each of these three reports included some data that showed an impact on the actual dropout rate of a group of students. Of the dozens of other reports received, the major shortcoming was the lack of any measure of the dropout rate. Most did measure related factors such as attendance, achievement, attitudes, participation rates, but they failed to measure the ultimate criterion toward which they all were designed to work--reduction of the dropout rate.

This was not only surprising but also disappointing. As much emphasis as is now being placed upon graduation from high school, we expected more school systems to have clearly defined methods for reporting dropout rates and for evaluating their prevention efforts based upon those rates. This search for successful practices further motivated us to pursue the methodology described in this paper for the evaluation of dropout prevention programs.

The ultimate criterion on which a dropout prevention program should be evaluated has to be the dropout or graduation rate of the program participants. However, practically, we often need interim measures that indicate program effectiveness or measures that at least tell us whether a student's levels on characteristics that are typically associated with dropping out are improving. From this perspective, we can create a hierarchy of criteria for evaluating dropout prevention programs.

As we evaluate new programs, we typically rely upon the criterion of partial success or criteria associated with success for short-term indications of impact. If the evaluation never goes beyond these criteria, then the evaluator has not provided an adequate assessment of the program's true viability.

As we work with the criterion of partial success to determine if students stayed in school longer than they would have without the program, and with the criteria associated with success to determine if the factors associated with dropping out are being improved, we need to be able to compare alternative programs equitably.

CRITERIA FOR EVALUATING DROPOUT PREVENTION PROGRAMS

Ultimate Criterion of Success:	Did the students earn a high school diploma?
Alternative Criterion of Success:	Did the students earn an equivalent to a high school diploma, or enter college, or complete training in a vocational program?
Criterion of Partial Success:	Did the students stay in school longer (earn more credits) than they would have without the program?
Criteria Associated with Success:	Did the students' at-risk factors become less negative? (For example: If attendance is correlated with graduating, then did the students' average daily attendance rates improve?)

FIGURE 1
H.B. 1010: THE STATE AT-RISK CRITERIA

H.B. 1010, passed by the Texas State Legislature in 1986 and taking effect September 1, 1987, relates to reducing the number of students who drop out of public school. Section 4 (f) of this bill states:

For the purposes of this section, "student at risk of dropping out of school" includes each student in grade levels seven through 12 who is under 21 years of age and who:

(1) was not advanced from one grade level to the next two or more school years;

(2) has mathematics or reading skills that are two or more years below grade level;

(3) did not maintain an average equivalent to 70 on a scale of 100 in two or more courses during a semester, or is not maintaining such an average in two or more courses in the current semester, and is not expected to graduate within four years of the date the student begins the ninth grade; or

(4) did not perform satisfactorily on an assessment instrument administered under Section 21.551(a) of this code in the seventh, ninth, or twelfth grade.

Grades 7-12
19 TAC 75.195(c) (1) - (4)

Below 21 years of age and meet one or more of the following:

(1) has not been promoted one or more times in grades 1-6 based on academic criteria established in subsections (a) and (b) of this section and continues to be unable to master the essential elements in the 7th or higher grade level;

(2) is two or more years below grade level in reading or mathematics;

(3) has failed at least two courses in one or more semesters and is not expected to graduate within four years of the time the student entered the 9th grade; or

(4) has failed one or more of the reading, writing, or mathematics sections of the most recent TEAMS test beginning with the seventh grade.

Grades 7-12
TEC 21.557 (f)

Under 21 years of age and who:

(1) was not advanced from one grade level to the next two or more school years;

(2) has mathematics or reading skills that are two or more years below grade level;

(3) did not maintain an average equivalent to 70 on a scale of 100 in two or more courses in the current semester, and is not expected to graduate within four years of the date the student begins the ninth grade; or

(4) did not perform satisfactorily on an assessment instrument administered under Section 21.551(a) of this code in the seventh, ninth, or twelfth grade.

H.B. 1010 amended the Texas Education Code (TEC) guidelines which are contained in the Texas Administrative Code (TAC). Provisions in both the TEC and TAC must be implemented as law.

A student who meets one or more of these criteria shall be identified as at risk. A student does not have to meet all four criteria to be considered at risk.

Optional criteria for identifying at-risk students, grades 1-12, are also included as follows:

Grades 1-12
19 TAC 75.195 (c) (5)
Optional criteria:

* environmental factors,
* familial factors,
* economic factors,
* social factors,
* developmental factors,
* other psychosocial factors where such factor contributes to the students' inability to progress academically.

Grades 7-12
TEC 11.205 (c)
Optional criteria:

*adjudged delinquent;
* abuses drugs/alcohol;
* limited English proficiency
* receives compensatory or remedial instruction;
*sexually, physically, or psychologically abused;
* pregnant;
* slow learner;
*underachiever;
*enrolls late in school year;
* stops attending school before the end of the school year;
*unmotivated; or
* other characteristics that indicate the student is at high risk of dropping out.

FIGURE 2

Definitions of Risk Category Codes

Risk Category	Risk Factors	Definition
1	Age	Student is two or more years older than expected for the grade level
2	Read Ach	Student scored two or more years below grade level in reading on a norm-referenced, standardized achievement test (either the Iowa Tests of Basic Skills or the Tests of Achievement and Proficiency)
3	Math Ach	Student scored two or more years below grade level in mathematics on a norm-referenced, standardized achievement test (either the ITBS or the TAP)
4	2 F's	Student failed at least two courses during a semester
5	TEAMS Read	Student failed the reading section on the most recent administration of the state-mandated, criterion-referenced Texas Educational Assessment of Minimum Skills (TEAMS) (grades 7 and 9 only)
6	TEAMS Math	Student failed the mathematics section of the TEAMS
7	TEAMS Lang	Student failed the language arts section of the Exit-Level TEAMS (grades 11 and 12 only)
8	TEAMS WRITE	Student failed the writing section of the TEAMS (Grades 7 and 9 only)
9	TEAMS W COMP	Student failed only the writing composition portion of the TEAMS Writinig test (grades 7 and 9 only)
10	Age, Read Ach or Math Ach	Student is two or more years older than expected for the grade level and scored two or more years below grade level in reading or mathematics on the ITBS or TAP
11	Age, 2 F's	Student is two or more years older than expected for the grade level and failed at least two courses during a semester
12	Age, TEAMS (any)	Student is two or more years older than expected for the grade level and failed at least one of the sections of the TEAMS
13	Math Ach or Read Ach & 2 F's	Student scored two or more years below grade level in mathematics or reading on the ITBS or the TAP and failed at least two courses during a semester
14	Math Ach or Read Ach & TEAMS (any)	Student scored two or more years below grade level in mathematics or reading on the ITBS or the TAP and failed at least one of the sections of the TEAMS
15	2 F's, TEAMS (any)	Student failed at least two courses during a semester and failed at least one of the sections of the TEAMS
16	Age, Math Ach or Read Ach, & 2 F's	Student is two or more years older than expected for the grade level, scored two or more years below grade level in mathematics or reading on the ITBS or the TAP, and and failed at least two courses during a semester
17	Age, Math Ach or Read Ach, &TEAMS (any)	Student is two or more years older than expected for the grade level, socred two or more years below grade level in mathematics or reading on the ITBS or the TAP, and failed at least one of the sections of the TEAMS
18	Age, 2 F's, & TEAMS (any)	Student is two or more years older than expected for the grade level, failed at least one of the sections of the TEAMS
19	Age, Math Ach or Read Ach, 2 F's, & TEAMS (any)	Student is two or more years older than expected for the grade level, scored two or more years below grade level in mathematics or reading on the ITBS or the TAP, failed at least two courses during a semester, and failed at least one of the sections of the TEAMS
20	Math Ach & Reading Ach	Student scored two or more years below grade level in mathematics and in reading on the ITBS or the TAP
21	TEAMS (two)	Student failed at least two sections of the TEAMS.
22	Math Ach or Read Ach, 2 F's, &TEAMS (any)	Student scored two or more years below grade level in mathematics or reading on the ITBS or the TAP, failed at least two courses during a semester, and failed at least one of the sections of the TEAMS.

After obtaining a dropout risk probability for each student in the District in grades 7-12, a predicted dropout rate can be obtained for a group. Summing the dropout risk probability for each student in the group and dividing by the total N in the group provides a group dropout risk probability for any defined group. This procedure can be extended to any **number** of groups one wishes to define or any **type** of group one wishes to define, such as grade level or individual campuses. From this initial information a predicted dropout rate can be obtained for a group which is then compared with the actual dropout rate for that group. Let's look at two examples.

EXAMPLE PROGRAM A (An x indicates student is at risk in a category.)

Students	Age	F's	CRT	NRT	Risk Group	Risk Factor	Actual Status
Number 1	x				1	30.36	IN
Number 2	x			x	10	24.31	IN
Number 3	x	x			11	32.82	OUT
Number 4	x		x		12	45.75	OUT
Number 5	x	x	x		18	37.70	IN

Mean Risk Factor 34.19

34.19 X 5 Students = 1.7 Predicted Dropouts

2.0 Actual Dropouts / 1.7 Predicted Dropouts = 1.18

Therefore, Example Program A would be credited with a dropout rate that is 118% of its predicted rate.

EXAMPLE PROGRAM B

Students	Age	F's	CRT	NRT	Risk Group	Risk Factor	Actual Status
Number 1	x		x		12	45.75	IN
Number 2	x		x		12	45.75	IN
Number 3	x		x		12	45.75	OUT
Number 4	x		x		12	45.75	OUT
Number 5	x		x		12	45.75	IN

Mean Risk Factor 45.75

45.75 X 5 Students = 2.3 Predicted Dropouts

2.0 Actual Dropouts / 2.3 Predicted Dropouts = 0.87

Therefore, Example Program B would be credited with a dropout rate that is 87% of its predicted rate.

When Programs A and B are compared with each other, the evaluation would conclude that Program B is more effective, because it served students who were at higher risk of dropping out and kept them in school at the same rate as did Program A.

Obviously, because students drop out in whole numbers and these predicted rates are calculated in fractions of students, the larger a program is, the more logical this type of comparison becomes. In the example above, Program A has a predicted dropout rate of 1.7 students. Either 1.0 or 2.0 (or any other whole number up to 5.0) students could actually drop out; therefore, the program cannot match its predicted rate, but must be over or under.

A more perplexing issue is whether within the risk groups programs are selecting for service those students that are at greater risk than their group peers. For instance, a program that targets those students who have recently decided to drop out and tries to keep them in or bring them back might be serving students whose true predicted dropout rate is close to 100% rather than what would be predicted using the at risk group's dropout rates. These "crisis intervention" programs may be less appropriately evaluated using this methodology than are those programs that enroll students at the beginning of a semester or school year.

MODIFICATIONS

This procedure was first used in 1988-89 to evaluate the effectiveness of 11 dropout prevention programs serving students in grades 9-12 and eight dropout prevention programs serving students in grades 7-8. Dropout risk probabilities were determined for each student as of the end of the school year. From that, a predicted dropout rate for each group was determined and compared to the actual (obtained) dropout rate. See Figure 3.

We were left with several questions after this initial application. Were the dropout risk rates different for high school and middle school students? Was it legitimate to compare fall-only programs and spring-only programs using dropout risk probabilities calculated as of the end of the sixth six weeks? Furthermore, keeping students in school during the school year is one thing. We also need for them to return the following fall if they have not graduated. What were the dropout rates as of the end of a calendar year? How did the programs compare with each other then?

FIGURE 3

1988-89 Dropout Rates for Selected Programs, Predicted, Obtained, and Obtained as Percent of Predicted

GRADES 9-12

	FALL 1988				SPRING 1989			
Program	N	Predicted Dropout Rate	Obtained Dropout Rate	Obtained % of Predicted	N	Predicted Dropout Rate	Obtained Dropout Rate	Obtained % of Predicted
CIS	N/A	N/A	N/A	N/A	130	6.72	6.9	102.7
CVAE	464	14.29	24.4	170.7	627	10.15	6.1	60.1
GRAD	813	13.45	37.8	281.0	1,163	10.96	31.6	288.3
JLC	51	11.09	12.2	110.0	46	7.65	4.3	54.8
Mentor	N/A	N/A	N/A	N/A	38	3.30	0	0
PAL	**	**	**	**	122	7.26	0.8	11.0
PEAK	N/A	N/A	N/A	N/A	86	8.31	5.8	69.8
Rice	86	13.82	31.4	227.2	192	10.10	14.1	139.6
Robbins	186	12.99	23.7	182.4	239	9.93	12.1	121.9
TAP	48	12.14	16.7	137.6	*	*	*	*
Zenith	28	19.57	42.9	219.2	57	13.42	1.8	13.4

Note to Readers: The authors realize these programs names and acronyms are too cryptic for most readers. These lists are included to be illustrative of the numbers and range of programs evaluated.

GRADES 7-8

	FALL 1988				SPRING 1989			
Program	N	Predicted Dropout Rate	Obtained Dropout Rate	Obtained % of Predicted	N	Predicted Dropout Rate	Obtained Dropout Rate	Obtained % of Predicted
AIP	219	11.95	8.7	72..8	206	12.07	1.5	12.4
CIS	N/A	N/A	N/A	N/A	99	7.60	1.0	13.2
CVAE	155	7.74	2.6	33.6	124	7.52	0	0
PAL	**	**	**	**	166	10.59	1.2	11.3
Rice	111	20.09	24.2	120.4	196	14.66	0	0
Robbins	70	22.26	30.0	134.8	45	30.72	35.6	115.9
TAP	39	11.00	17.9	162.7	12	24.05	30.8	128.1
WIN	144	10.40	4.2	40.2	78	8.86	11.7	132.1

* Number of students is too small for analysis.

** Incomplete data.

N/A = Not applicable. Program began service in spring, 1988. CIS service may have been yearlong, but data were not provided until spring

With these questions in mind, after that first experience, it was decided to undertake three modifications:

Modification 1: Probability by separate grade span

Modification 2: Probability by semester

Modification 3: Probability by individual campus

The first modification of the procedure was to derive the dropout risk probability for grades 9-12 separate from grades 7-8. The next modification was to have the dropout risk probabilities calculated differently for fall or year-long programs from spring-only programs.

Fall and year-long programs now have a dropout risk probability calculated for the end of the fall semester, for the end of the school year, and for the end of the calendar year based on the fall enrollment. Separate calculations are prepared for grades 9-12 and grades 7-8. See Figure 4 and 5.

Spring programs now have a dropout risk probability calculated for the end of the spring semester and, in order to reflect summer dropouts, calculated as of October. Both calculations are based on spring enrollment. Separate calculations are prepared for grades 9-12 and grades 7-8. Figure 6 and 7.

The final modification was to apply this procedure to the individual school campuses. We knew there were differences in actual dropout rates between campuses. Were there differences in the predicted dropout rates between campuses? How well were the campuses working with their assigned population? Were some campuses more effective in keeping students in school?

When we applied the procedure to all campuses, we discovered the need for a risk probability value for students who are not at risk. These students do not have the value 0. Giving those students a value of 0 would underpredict the number of dropouts for any group having even one not-at-risk student. Students who are not at risk do drop out. Therefore, they have the value of the number of students not at risk who dropped out divided by the number enrolled who are not at risk. This value varies by semester and grade level.

DATA SOURCES

Data for the study were drawn from AISD files of at-risk students, dropout files from the end of each six-week period of the school year, and from a seven-year longitudinal dropout file maintained by ORE. The longitudinal dropout file contains for each student the student's dropout status in each school year, as well as other basic information. The at-risk files contain for each at-risk student the reason(s) for being at risk as well as other basic information.

RESULTS

Will rates differ if calculated separately for students in grades 9-12 and for students in grades 7-8?

In 1988-89 there were 941 students in grades 7-12 at risk in risk category 1. Of those, 361 dropped out for a risk rate of 30.4%. We recalculated for grades 9-12 and for grades 7-8.

	At-Risk Students	Dropouts	%
Grades 7-12	**941**	**361**	**38.4**
Grades 9-12	**710**	**310**	**43.7**
Grades 7-8	**231**	**51**	**22.1**

As you can see, the recalculations display quite dramatically that the original calculation had given numbers which, when applied to programs, had the potential to overpredict greatly the number of dropouts for middle school and greatly underpredict the number of dropouts for high school.

Will rates differ if calculated separately for spring and fall?

For 1989-90 we calculated for spring and fall separately also. To simplify matters for illustrative purposes, let's look at the results of this separate calculation using the combined numbers for grades 7-12 for risk category 1.

	Grades 7-12 At-Risk Students	Dropouts	%
Fall, End of Fall	**1,021**	**183**	**17.92**
Fall, End of Year	**1,021**	**310**	**30.36**
Spring, End of Spring	**720**	**127**	**17.64**

Note that the number of at-risk students changes from fall to spring. This decline in enrollment occurs because some students dropped out and others transferred out of the District during the fall.

Dividing the number of dropouts during the spring by the spring enrollment yields a risk factor of 17.64% (127/720) to be used for those students enrolled in spring-only programs. Note that the 17.64% for dropouts in the spring (one semester) compares to the 17.92% who dropped out in the fall (one semester).

FIGURE 4

DROPOUTS AS FUNCTION OF AT-RISK STATUS
STUDENTS ENROLLED FALL 1989-90,
GRADES 9-12

		END OF FALL SEMESTER		END OF SCHOOL YEAR		AS OF OCTOBER, 1990	
Risk Category 1989-90	Enrollment	Dropouts* 1989-90	Dropouts % of Risk Category	Dropouts** 1989-90	Dropouts % of Risk Category	Dropouts*** 1989-90	Dropouts % of Risk Category
1	765	155	20.3	249	32.6	247	32.3
2	482	7	1.5	23	4.8	12	2.5
3	271	3	1.1	12	4.4	16	5.9
4	560	9	1.6	66	11.8	62	11.1
5	117	4	3.4	9	7.7	7	6.0
6	119	2	1.7	9	7.6	10	8.4
7	4	0	0.0	0	0.0	0	0.0
8	241	8	3.3	12	5.0	12	5.0
9	579	13	2.2	19	3.3	12	2.1
10	145	18	12.4	35	24.1	33	22.8
11	387	26	6.7	127	32.8	120	31.0
12	245	80	32.7	117	47.8	106	43.3
13	232	7	3.0	35	15.1	34	14.7
14	1,228	24	2.0	76	6.2	74	6.0
15	276	5	1.8	43	15.6	36	13.0
16	137	9	6.6	33	24.1	32	23.4
17	183	39	21.3	70	38.3	67	36.6
18	252	23	9.1	95	37.7	89	35.3
19	346	12	3.5	77	22.3	85	24.6
20	364	13	3.6	28	7.7	24	6.6
21	291	12	4.1	38	13.1	34	11.7
22	363	6	1.7	47	13.0	38	10.5
Total	7,587	475	6.3	1,220	16.1	1,150	15.2

*Total fall high school dropouts = 678; therefore, 203 (29.9%) not identified as at risk.
Not at-risk Dropouts/Not at-risk enrollment = Risk rate for not at risk students. 203/9,101 = 2.2.

**Total end of year high school dropouts = 1,800; therefore, 580 (32.8%) not identified as at risk.
Not at-risk Dropouts/Not at-risk enrollment = Risk rate for not at-risk students. 580/9,634 = 6.0

***Total fall high school dropouts = 1,748; therefore, 598 (34.2%) not identified as at risk.
Not at-risk Dropouts/Not at-risk enrollment = Risk rate for not at-rsik students. 598/9,101 = 6.6

FIGURE 5

DROPOUTS AS FUNCTION OF AT-RISK STATUS
STUDENTS ENROLLED FALL 1989-90,
GRADES 7-8

		END OF FALL SEMESTER		END OF SCHOOL YEAR		AS OF OCTOBER, 1990	
Risk Category 1989-90	Enrollment	Dropouts* 1989-90	Dropouts % of Risk Category	Dropouts** 1989-90	Dropouts % of Risk Category	Dropouts*** 1989-90	Dropouts % of Risk Category
1	256	28	10.9	61	23.8	60	23.4
2	288	3	1.0	5	1.7	12	4.2
3	56	0	0.0	0	0.0	2	3.6
4	N/A	-	-	-	-	-	-
5	127	0	0.0	4	3.2	6	4.7
6	138	0	0.0	8	5.8	6	4.4
7	N/A	-	-	-	-	-	-
8	259	1	0.4	5	1.9	11	4.4
9	324	1	0.3	5	1.5	7	2.2
10	73	6	8.2	18	24.7	16	21.9
11	N/A	-	-	-	-	-	-
12	120	25	20.8	50	41.7	46	38.3
13	N/A	-	-	-	-	-	-
14	909	7	0.8	27	3.0	41	4.5
15	N/A	-	-	-	-	-	-
16	N/A	-	-	-	-	-	-
17	152	7	4.6	28	18.4	20	13.2
18	N/A	-	-	-	-	-	-
19	N/A	-	-	-	-	-	-
20	82	1	1.2	2	2.4	4	4.9
21	388	5	1.3	17	4.4	19	4.9
22	N/A	-	-	-	-	-	-
Total	3,172	84	2.6	230	7.3	250	7.9

*Total fall middle/junior high school dropouts = 138; therefore, 54(39.1%) not identified as at risk.
Not at-risk Dropouts/Not at-risk enrollment = Risk rate for not at risk students. 54/5,793 = 0.9.

**Total end of year middle/junior high school dropouts = 409; therefore, 179 (43.8%) not identified as at risk.
Not at-risk Dropouts/Not at-risk enrollment = Risk rate for not at-risk students. 179/6,195 = 2.9.

***Total fall middle/junior high school dropouts = 517; therefore, 267 (51.6%) not identified as at risk.
Not at-risk Dropouts/Not at-risk enrollment = Risk rate for not at-rsik students. 267/5,793 = 4.6

FIGURE 6
DROPOUTS AS FUNCTION OF AT-RISK STATUS
STUDENTS ENROLLED SPRING 1989-90,
GRADES 9-12

		END OF SPRING SEMESTER		AS OF OCTOBER, 1990	
Risk Category 1989-90	Enrollment	Dropouts* 1989-90	Dropouts % of Risk Category	Dropouts** 1989-90	Dropouts % of Risk Category
1	532	94	17.7	120	22.6
2	449	16	3.6	8	1.8
3	252	9	3.6	11	4.4
4	509	57	11.2	51	10.0
5	107	5	4.7	5	4.7
6	107	7	6.5	8	7.5
7	3	0	0.0	0	0.0
8	222	4	1.8	9	4.1
9	544	6	1.1	6	1.1
10	107	17	15.9	16	15.0
11	318	101	31.8	88	27.7
12	131	37	28.2	40	30.5
13	204	28	13.7	25	12.3
14	1,141	52	4.6	52	4.6
15	254	38	15.0	30	11.8
16	122	24	19.7	23	18.9
17	137	31	22.6	27	19.7
18	205	72	35.1	64	31.2
19	299	65	21.7	68	22.7
20	335	15	4.5	16	4.8
21	251	26	10.4	23	9.2
22	331	41	12.4	29	8.8
Total	6,560	745	11.4	719	11.0

*Total spring high school dropouts = 1,122; therefore, 377 (33.6%) not identified as at risk.
Not at-risk Dropouts/Not at-risk enrollment = Risk rate for not at risk students. 377/8,955 = 4.2.

**Total spring high school dropouts = 1,120; therefore, 401(35.8%) not identified as at risk.
Not at-risk Dropouts/Not at-risk enrollment = Risk rate for not at-risk students. 401/8,955 = 4.5.

Compare those numbers with the 30.36% of students who had dropped out as of the end of the sixth six weeks who were in fall or year-long programs. The 17.64 will produce a more accurate prediction for dropouts from spring programs than would the 30.36.

As mentioned earlier, we are now calculating separate risk rates for spring and fall by level (high school or middle school). These separate risk rates will provide more accurate predictions of dropouts and will provide better comparison of programs to determine program effectiveness.

What are the results of the applications used in these procedures?

See Attachment 1 for results of the application of these procedures to dropout prevention programs for 1989-90. This specific cross-program comparison looks at dropout rates as of October, 1990, for students served by dropout prevention programs in the fall of 1989. Similar charts are available for students served in the fall as of the end of fall and as spring as of the end of spring and as of October. See Attachment 2 for results of the application of these procedures to the individual campuses.

Comparisons of programs with each other at a specific point in time can be made by looking at charts similar to Attachment 1. If we wish to compare a program with itself across time or programs with each other at different points in time we need a chart like the one below.

Program		Number of Semesters 1	2	Following October
Grades 7-8				
AIP	Fall	47.0	76.4	48.6
	Spring	105.0		103.6
Mentor (year long)		37.0	107.1	99.5
Teenage Parent	Fall	0	221.7	232.4
	Spring	465.7		379.3
Grades 9-12				
ALC	Fall	94.9	205.7	139.0
	Spring	237.1		104.0
Renaissance (year long)		89.9	125.3	106.5
Zenith	Fall	87.7	90.5	106.7
	Spring	69.6		85.0

From this type of chart it is possible to detect consistency of programs across time, to detect which programs are better in fall versus spring, and to detect from which programs or which semester of service students are more likely to return to school in the fall of the following year.

With the realization that this type of chart, while useful, was not easy to read or interpret, we searched for an alternative presentation format. A spin-off of this procedure has allowed a simple, visual representation of the effectiveness of dropout programs. The dropout risk ratio is converted to ++, +, 0, -, or -- determined by the direction and distance of the ratio from 100. See Attachment 3.

Program	Risk Rate Ratio	Effectiveness
7-8		
Academic Incentive Program	48.6	++
Mentor	99.5	0
Teenage Parent Center	232.4	--
9-12		
PAL	83.8	+
Renaissance	106.5	0
Evening School	171.1	--

Effectiveness: 100 (+ or - 10 points) = + or -, 100 (+ or - 50 points) = ++ or --. See Attachment 8.

IMPORTANCE OF LONGITUDINAL DATA BASES

The importance of well-maintained, longitudinal data bases for the evaluation of dropout prevention programs cannot be understated. The decision by ORE in 1984 to create a longitudinal data base to reflect the dropout status of all AISD secondary students has had an incalculable impact on local, and even state, policymaking. All discussions of the dropout issue ultimately revolve around the dropout rate, and without reliable data would be hypothetical, pointless, and a waste of time.

EDUCATIONAL IMPORTANCE OF THE STUDY

This new methodology:

(1) Provides a statistical method for comparing the effectiveness of dropout prevention programs.

(2) Uses evaluation criteria actually related to the event of dropout/graduation.

(3) Adjusts for the level of risk of subjects in different programs.

The capability to identify correctly which programs are successful with at-risk students is critical if dropout intervention efforts are to be effective. With reliable evaluation information, District resources will be effectively targeted. Ineffective dropout programs will not continue to drain District and community resources.

REFERENCES

Ligon, G. (1991). At a glance. (Publication No. 89.40). Austin, TX: Austin Independent School District, Office of Research and Evaluation.

Ligon, G., Wilkinson, D., & Frazer, L. (1991). Lower costs, fewer staff, more information: Critique of a generic, database evaluation system. (Publication No. 90.21). Austin, TX: Austin Independent School District, Office of Research and Evaluation.

Ligon, G., Stewart, B., & Wilkinson, D. (1990). Making dropout rates comparable: An analysis of definitions and formulas. (Publication No. 89.22). Austin, TX: Austin Independent School District, Office of Research and Evaluation.

Wilkinson, D., Frazer, L., Stewart, B., & Ligon, G. (1989). New initiatives in dropout prevention: Project GRAD final report, 1989. (Publication No. 88.36). Austin, TX: Austin Independent School District, Office of Research and Evaluation.

ATTACHMENT 1

CROSS-PROGRAM COMPARISON
PREDICTED AND OBTAINED 1989-90 DROPOUT RATES
FALL, 1989
AS OF OCTOBER, 1990

Grades 9-12

Program	Group Dropout Risk	Enrollment	Predicted Dropout #	Predicted Dropout Rate	Obtained Dropout #	Obtained Dropout Rate	Obtained as a % of Predicted
ALC, Fall, 1989, Behavioral Studnets	2,734.2	140	27	19.5	38	27.1	139.0
CIS, Fall, 1989, Grades 9-12	655.4	43	7	15.2	6	14.0	91.5
CVAE, Fall, 1989, Grades 9-12	8,562.1	421	86	20.3	118	28.0	137.8
Evening School, Fall, 1989, Grades 9-12	2,104.0	76	21	27.7	36	47.4	171.0
GRAD, Fall, 1989, Referral Code = 1, Rev	2,751.4	151	28	18.2	26	17.2	94.5
GRAD, Fall, 1989, Referral Code = 3, Rev	3,712.1	207	37	17.9	36	17.4	97.0
GRAD, Fall, 1989, Referral Code = 4, Rev	1,916.9	106	19	18.1	34	32.1	177.4
Johnston CCP Computer Lab Fall, 1989-90	1,048.1	45	10	23.3	12	26.7	114.5
Johnston Dropout Recovery Program	269.0	23	3	11.7	5	21.7	185.9
Mentor, Fall, 1989	1,341.4	133	13	10.1	12	9.0	89.5
PEAK, Falll, 1989	1,716.7	113	17	15.2	24	21.2	139.8
Renaissance Program at Johnston	751.4	93	8	8.1	8	8.6	106.5
Robbins, Fall, 1989, Grades 9-12	3,503.8	188	35	18.6	51	27.1	145.6
Seniors Receiving PAL Services, Fall 1989	1,431.7	127	14	11.3	12	9.4	83.8
Teenage Parent Center, Fall, 1989	1,791.9	111	18	16.1	51	45.9	284.6
Transitional Academic Program	597.9	74	6	8.1	15	20.3	250.9
Zenith, Fall, 1989, Grades 9-12	5,530.8	210	55	26.3	59	28.1	106.7
TOTAL	40,418.8	2261	404	17.9	543	24.0	134.3

Grades 7-8

Program	Group Dropout Risk	Enrollment	Predicted Dropout #	Predicted Dropout Rate	Obtained Dropout #	Obtained Dropout Rate	Obtained as a % of Predicted
Academic Incentive Program, Fall, 1989	617.2	56	6	11.0	3	5.4	48.6
ALC, Fall, 1989, Behavioral Studnets	758.5	82	8	9.2	21	25.6	276.9
ALC,, Fall, 1989, Overage Students, Grade	1,741.5	74	17	23.5	38	51.4	218.2
CIS, Fall, 1989, Grades 6-8	2,66.2	25	3	10.6	5	20.0	187.8
CVAE, Fall, 1989, Grades 6-8	349.0	65	3	5.4	4	6.2	114.6
Juniors Receiving PAL Services, Fall	1,294.0	180	13	7.2	13	7.2	100.5
Mentor, Fall, 1989	803.8	99	8	8.1	8	8.1	99.5
Robbins, Fall, 1989, Grades 6-8	2,105.1	102	21	20.6	42	41.2	199.5
Teenage Parent Center, Fall, 1989, Grade	172.1	10	2	17.2	4	40.0	232.4
WIN, Fall, 1989, Grades 7-8	276.8	38	3	7.3	7	18.4	252.9
TOTAL	8,384.2	731	84	11.5	145	19.8	172.9

ATTACHMENT 2
PREDICTED AND OBTAINED DROPOUT RATES
AS OF END OF SIXTH SIX WEEKS 1989-90

	Group Dropout Risk	Enrollment	Predicted Dropouts #	Predicted Dropouts Rate	Obtained Dropouts #	Obtained Dropouts Rate	Obtained as a % of Predicted
ALC	2703.4	164	27	16.5	60	36.6	222.0
Anderson	12036.0	1427	120	8.4	97	6.8	80.6
Austin	17077.7	1775	171	9.6	198	11.2	116.4
Bowie	19023.1	2238	190	8.5	75	3.4	40.0
Crockett	19239.5	1870	192	10.3	137	7.4	71.9
Johnston	22146.5	1755	221	12.6	301	17.3	137.1
LBJ	10994.3	1371	110	8.0	61	4.5	56.1
Lanier	17190.4	1604	172	10.7	224	14.1	131.6
McCallum	14523.4	1423	145	10.2	126	9.0	88.2
Reagan	15457.8	1429	155	10.8	170	12.0	110.9
Robbins	3664.5	209	37	17.5	56	27.5	156.8
Travis	16150.4	1486	162	10.9	128	8.7	80.0
Subtotal	170207.0	16751	1702	10.2	1633	9.8	96.4
Evening HS	2921.5	137	29	21.3	48	46.2	216.6
Austin Stat	364.4	43	4	8.5	7	16.3	192.3
Development	711.0	52	7	13.7	2	4.0	29.3
Rio Grande	803.0	45	8	17.8	13	29.5	165.3
Homebound	183.1	22	2	8.3	1	4.5	54.1
Mary Lee	223.8	24	2	9.3	10	41.7	447.2
Clifton	2604.7	106	26	24.6	4	3.8	15.5
Teenage Par	3243.0	198	32	16.4	85	43.4	265.0
Shoal Creek	112.3	15	1	7.5	2	13.3	177.6
Children Ce	6.0	1	0	6.0	0	0.0	0.0
Subtotal	11172.8	643	112	17.4	172	28.4	163.4
Total	181379.8	17394	1814	10.4	1805	10.5	100.7
ALC	2823.5	223	28	12.7	89	39.9	315.1
Bedichek	2534.7	682	25	3.7	16	2.3	61.9
Burnet	2591.2	666	26	3.9	26	3.9	100.2
Covington	3012.0	929	30	3.2	3	0.3	9.3
Dobie	2237.0	611	22	3.7	21	3.4	92.9
Fulmore	2287.1	613	23	3.7	19	3.1	83.1
Kealing	3005.0	807	30	3.7	13	1.6	43.0
Lamar	2045.0	543	20	3.8	15	2.8	74.3
Martin	3479.8	778	35	4.5	33	4.2	93.9
Mendez	2449.9	684	24	3.6	9	1.3	36.3
Murchison	3199.1	727	32	4.4	7	1.0	22.7
O. Henry	1701.3	458	17	3.7	8	1.7	45.8
Pearce	2406.6	573	24	4.2	30	5.2	123.8
Porter	2736.4	749	27	3.7	21	2.8	76.6
Robbins	2598.4	130	26	20.0	62	47.7	238.6
Subtotal	39107.0	9173	391	4.3	372	4.1	96.2
Austin Stat	217.4	48	2	4.5	7	14.6	322.4
Development	29.0	10	0	2.9	0	0.0	0.0
Rio Grande	447.5	46	4	9.7	4	8.7	89.4
Homebound	106.7	9	1	11.9	3	33.3	280.9
Mary Lee	69.6	23	1	3.0	5	21.7	717.1
Teenage Par	309.0	32	3	9.7	8	25.0	258.9
Shoal Creek	69.6	24	1	2.9	5	20.8	717.2
Children Ce	8.7	3	0	2.9	0	0.0	0.0
Subtotal	1257.5	195	13	6.4	32	16.4	254.3
Total	40364.5	9368	404	4.3	404	4.3	99.8

ATTACHMENT 3
EFFECTIVENESS OF DROPOUT PROGRAMS

PROGRAM	[1]Cost	[2]Funding	[3]OUTCOMES FALL Dropouts	Attendance	Discipline	Fs	GPA	SPRING Dropouts	Attendance	Discipline	Fs	GPA
Grades 9-12												
ALC Beh.	$$$	L	-	0	++	0	+	0			0	+
CCP (Johnston)	$$	L	-	-	-	0	0	0	0	0	0	0
CIS	$	E	0	--	-	0	-	0	--	--	0	-
CVAE	$$	L	-	+	+	0	0	0	--	+	0	-
DO Rec. (Jan '90)	$	0	-	++	0	+	++					
Evening School	$$$	L	--	++	++			--	--	+		
GRAD-1 (In School)	$$$	E	0	0	0	0	0	0	--	0	0	0
GRAD-2 (S'd/E'd)	$$$	E		-	--	0	0	-	--	--	-	0
GRAD-3 (Dropouts)	$$$	E	0	++	+	0	+	--	-	-	0	0
GRAD-4 (Truant)	$$$	E	--	0	++	0	0	--	-	++	0	0
Mentor	$	L	+	0	+	0	-	+	-	+	0	-
PAL	$	E	+	0	+	0	0	++	--	0	0	0
PEAK	$$	L	-	0	--	0	+	-	--	-	0	0
Renaissance	$$	L	0	-	++	++	++	-	--	++	++	++
Robbins	$$$	L	-	+	-	0	0	-	-	++	0	0
TAP (Fall only)	$$$	L	--	--	++							
Teen Parent Center	$$$	L	--	--	+	+	++	--	--	0	0	++
Touch (New Spg '90)	$	0						+	--	--	0	-
Zenith	$	L	0	++	+	+	++	+	-	+	0	0
Grades 7-8												
AIP	$$$	L	++	++	++	+	++	0	--	--	0	+
ALC Beh.	$$$	L	--	-	++			--				
ALC Overage	$$$	L	--	+	++			--				
CIS	$	E	--	+	--	+	++	-	--	--	0	0
CVAE	$$	L	-	0	-	0	0	++	0	0	0	0
HSSI (New Spg '90)	$	E						+	0	--	0	0
Mentor	$	E	0	+	+	0	0	+	-	-	0	0
PAL	$	E	0	0	++	0	+	+	-	0	0	0
Robbins	$$$	L	--	+	++	+	++	--	--	-	0	-
Teen Parent Center	$$$	L	--	++	0			--	--	0		
WIN	$$$	L	--	+	+	-	0	--	-	0	-	0

[1]Cost
[1 to 3 $]: 1 = Low
3 = High

[2]Funding
E = External
L = Local
0 = None

[3]Program Impact:
Positive = +
Negative = -
No Change = 0
Strongly positive = ++
Strongly negative = --
A Blank = Insufficient numbers or Does not apply

PROGRAM	(S OR Y?) SEMESTER OR YEAR-LONG?
GRADES 9-12	
ALC Beh. = Alternative Learning Center students with behavioral problems	S
CCP (Johnston) = Computer competencies program at Johnston High	S
CIS = Communities in Schools	S
CVAE = Coordinated Vocational Academic Education	S
DO Rec. = Dropout Recovery in January '90 at Johnston High	S
Evening School = Evening school	S
GRAD-1 = In school students who the intervention specialists served (Grant Research About Dropouts)	S
GRAD-2 = Suspended or expelled students who the intervention specialists contacted	S
GRAD-3 = Students who were already dropouts who the intervention specialists worked with	S
GRAD-4 = Students who were in school but absent 9-29 days who the intervention specialists served	S
Mentor = Mentor	Y
PAL = Peer Assistance Leadership	S
PEAK = Practical, Effective, Appropriate Knowledge	S
Renaissance = Math-reading-language arts block of 9th graders at Johnston	Y
Robbins = Alternative school	S
TAP = Transitional Academic Program	S
Teen Parent Center = Campus for pregnant girls	S
Touch = counseling and tutoring at Crockett	S
Zenith = individualized curriculum contracts	S
GRADES 7-8	
AIP = Academic Incentive Program	S
ALC Beh. = Alternative Learning Center students with behavioral problems	S
ALC Overage = ALC students who were sent there because of their age	S
CIS = Communities in Schools	S
CVAE = Coordinated Vocational Academic Education	S
HSSI = Hispanic student scholarship initiative where UT students tutored average achievers	S
Mentor = Mentor	Y
PAL = Peer Assistance Leadership	S
Robbins = Alternative school	S
Teen Parent Center = Campus for pregnant girls	S
WIN = Work incentive program for borderline-of-failing students	Y

DECISION RULES

All areas of impact are calculated during the semester in question with two exceptions. Attendance and discipline at the ALC are measured after the semester, and all areas of impact for Dropout Recovery are measured for the spring of 1990.

A program is categorized as year-long if 60% or more of the same students were enrolled in it for both semesters.

Differentials

Attendance:	2 points [+ or -]; 5 or more points [++ or --]
Discipline:	2 points [+ or -]; 5 or more points [++ or --]
Fs :	1 point [+ or -]; 2 or more points [++ or --]
GPA :	2 points [+ or -]; 5 or more points [++ or --]
Dropouts :	10 points [+ or -];50 or more points [++ or --]